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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,526	12/14/2001	Hyung-Ki Hong	8733.547.00	3254

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EXAMINER

STEVENSON, ANDRE C

ART UNIT

PAPER NUMBER

2812

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/014,526	<b>Applicant(s)</b> HONG, HYUNG-KI	
	<b>Examiner</b> Andre' C. Stevenson	<b>Art Unit</b> 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,11,12,14 and 15 is/are rejected.
- 7) ☒ Claim(s) 2,9,10 and 13 is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some \* c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) \_\_\_\_.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

**Attachment(s)**

- |   |  |
|---|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 20) <input type="checkbox"/> Other: _____                                    |

### **Detail Action**

Applicant is reminded that in order for a patent issuing on the instant application to obtain the benefit of priority based on priority papers filed in parent Application No. 10014526 under 35 U.S.C. 119(a)-(d) or (f), a claim for such foreign priority must be made in this application. In making such claim, applicant may simply identify the application containing the priority papers.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1, 3, 4, 6, 8, 11, 12, 14 & 15 through are rejected under 35 U.S.C. 102(a) as being anticipated by Okada et al (U.S. Pat. No.6221444 B1).

Okada et al (U.S. Pat. No.6221444 B1), for **Claim #1**, a color liquid crystal display device, comprising upper and lower substrates facing and spaced apart from each other a liquid crystal layer interposed between the upper and lower substrates and wherein the liquid crystal layer is initially aligned parallel to the substrates (**Column 1, lines 6 through 16**); a polarizer disposed on an outer surface of the upper substrate(**Fig. 2a, Column 2, lines 41 through 44**); and a reflection plate disposed on

an outer surface of the lower substrate (**Column 10, lines 38 through 47**); wherein the liquid crystal layer is re-aligned by an applied voltage and a transmittance of the liquid crystal layer for a specific wavelength is changed according to a change of an angle between a light axis of the liquid crystal layer and a transmission axis of the polarizer so that the device can display multiple colors (**Fig. 1a,b & c, Column 3, lines 15 through 29, Column 9, lines 49 through 67, Column 10, lines 1 through 2**).

With respect to **Claim #3**, a color liquid crystal display device according to claim 1, further comprising a phase compensation plate interposed between the lower substrate and the reflection plate, is taught by Okada et al (U.S. Pat. No.6221444 B1), (Fig. 2a, column 12, lines 44 through 65).

With respect to **Claim #4**, a color liquid crystal display device according to claim 1, wherein the liquid crystal layer includes one of ferroelectric liquid crystal material and an antiferroelectric liquid crystal material, is taught by Okada et al (U.S. Pat. No.6221444 B1), (column 8, lines 50 through 63).

Furthermore, **Claim #6**, a color liquid crystal display device according to claim 1, wherein the reflective plate is an opaque metal, is taught by Okada et al (U.S. Pat. No.6221444 B1) (column 10, line 38 through 47).

With respect to **Claim #8**, a liquid crystal display device, comprising: upper and lower substrates parallel to each other and separated by a predetermined distance, the upper and lower substrates having inner and outer surfaces, respectively, the respective inner surfaces facing each other (**column 1, line 6 through 16**); a pixel electrode over an inner surface of the lower substrate (**Fig. 3, item #31, column 10, line 38 through 47**); a common electrode over the inner surface of one of the upper and lower substrates; a polarizer on the outer surface of the upper substrate, the polarizer having a transmission axis (**Fig.2, column 2, line 41 through 44**); and a liquid crystal between the inner surfaces of the upper and lower substrates, the liquid crystal having a light axis that corresponds to a voltage between the common and pixel electrodes; wherein an angle between the light axis and the transmission axis corresponds to voltage between the common and pixel electrodes and is tunable for transmission of a specific wavelength of light, is taught by Okada et al (U.S. Pat. No.6221444 B1) (**Fig. 1a,b & c, column 3, line 15 through 29, Column 9, lines 49 through 67, Column 10, lines 1 through 2**).

Considering now **Claim #11**, a liquid crystal display device of claim 8, wherein the common electrode is transparent and is on the inner surface of the lower substrate, is taught by Okada et al (U.S. Pat. No.6221444 B1) (Fig. 3 items 22, 27 & 28, column 10, line 38 through 65).

Furthermore, **Claim #12**, a liquid crystal display device of claim 8, wherein the liquid crystal has a pretilt angle of approximately 0° when there is no electric field between the common and pixel electrodes and has a predetermined angle corresponding to an applied voltage between the common and pixel electrodes when a voltage is applied between the common and pixel electrodes, is taught by Okada et al (U.S. Pat. No.6221444 B1) (column 3, line 52 through 67, column 4, line 1 through 3, line 15 through 29).

Considering now **Claim #14**, a liquid crystal display device of claim 8, wherein the liquid crystal is 5 a ferroelectric liquid crystal, is taught by Okada et al (U.S. Pat. No.6221444 B1) (column 8, line 50 through 63).

Furthermore, **Claim #15**, a liquid crystal display device of claim 8, wherein the liquid crystal is an antiferroelectric liquid crystal, is taught by Okada et al (U.S. Pat. No.6221444 B1) (column 8, line 50 through 63).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al (U.S. Pat. No.6221444 B1) as applied to claims 1, 3, 4, 6, 8, 11, 12, 14 & 15 above, and further in view of Hong et al (U.S. Pat. No.6469762 B1).

Okada et al (U.S. Pat. No.6221444 B1) discloses the claimed invention except for a liquid crystal layer is aligned along an electric field parallel to the substrates. Hong et al (U.S. Pat. No.6469762 B1) teaches that it is known to have a liquid crystal layer that is aligned along an electric field parallel to the substrates.

With respect to **Claim #5**, a color liquid crystal display device according to claim 1, wherein the liquid crystal layer is aligned along an electric field parallel to the substrates, is taught by Hong et al (U.S. Pat. No.6469762 B1) (column 2, line 28 through 38).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a liquid crystal layer that is aligned along an electric field parallel to the substrates as taught by Hong et al (U.S. Pat. No.6469762 B1), since Hong et al (U.S. Pat. No.6469762 B1) states at column 2, line 28 through 38 that such a modification would allow the liquid crystal molecule arrangement of the splay type to change into a bend type.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al (U.S. Pat. No.6221444 B1) as applied to claims 1, 3, 4, 6, 8, 11, 12, 14 & 15 above, and further in view of Kubo et al (U.S. Pat. No.6295109 B1).

Okada et al (U.S. Pat. No.6221444 B1) discloses the claimed invention except for a reflective plate is aluminum. Kubo et al (U.S. Pat. No.6295109 B1) teaches that it is known to have a reflective plate that is aluminum.

Considering now **Claim #7**, a color liquid crystal display device according to claim 1, wherein the reflective plate is aluminum, is taught by Kubo et al (U.S. Pat. No.6295109 B1) (column 21, line 61 through 67 column 22, line 1 through 12, column 30, line 7 through 17).



It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a reflective plate that is aluminum as taught by Kubo et al (U.S. Pat. No.6295109 B1), since Kubo et al (U.S. Pat. No.6295109 B1) states at column 7, line 50 through 60 that such a modification would allow reflective electrode to be formed of a material having a high reflectance.

### **Objected Claims**

Claims 2, 9,10 & 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### **Claim #2**

- ✓ Gap between the upper and lower substrates has a value in a range between approximately 5  $\mu\text{m}$  to 7.5  $\mu\text{m}$ .

#### **Claim #9**

- ✓ A reflection plate on the outer surface of the lower substrate.

#### **Claim #10**

- ✓ Common electrode is transparent and is on the inner surface of the upper substrate.

**Claim #13**

- ✓ Predetennined distance is in the range of approximately 5  $\mu\text{m}$  approximately 7.5  $\mu\text{m}$

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (703) 308 6227. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached on (703) 308 3325. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

- TC2800 Official Before-Final RightFAX - (703) 746-8802
- TC2800 Official After-Final RightFAX - (703) 872-9319

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- TC2800 Customer Service RightFAX - (703) 872-9317



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06/10/03